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Statistics of Occupations.

INTRODUCTION.

In any analysis of the population especially from the standpoint of economics, it must be of interest to know what the people are doing. From the standpoint of economics population is looked upon as labor force. This labor force may be employed in one direction or another: in cultivating the ground, in extracting minerals from the soil, in turning raw material into forms fitted to satisfy human wants, in transporting commodities from one place to another, in distributing products among the different members of the community or in rendering personal services. The skill and efficiency with which these things are done is a question of the quality of labor; the number of people engaged in doing these particular things is a question of the quantity of labor and is susceptible of statistical treatment. In every modern census therefore, we have the total population, or at least those engaged actively in production, classified according to occupation.

The first impulse in classifying population according to occupation, is to follow the traditional lines of economic development. We have been accustomed to speak of agriculture, of commerce and trade, of manufactures, or industry, of the liberal professions and possibly of domestic service. We speak of one country as prevaillingly agricultural, of another as industrial, of a third as devoted to commerce. The history of economic civilization seems to use somewhat the same categories. Thus, while we speak of early communities in the pastoral or agricultural stage, and think of the mediaeval

period as one of traders and handicraftsmen, we characterize modern nations as commercial-industrial. Even economic categories may be made to follow much the same lines:—as agriculture, mining and fishing are extractive industries, manufacturing creates form-utility, transportation creates place-utility, mercantile trade distributes the products and the professions render economic services thus satisfying human wants.

In most censuses, therefore, we find the population distributed under the following heads.

Agriculture, often including mining and fisheries.
Trade and transportation.

Industry and manufactures.

Professional services.

Domestic services.

Unoccupied.

There are variations of this classification but by combination they can generally be reduced to the above headings.

With such a classification of population, interesting comparisons can be made both in space and time. We can show, for instance, the prevailingly industrial character of the population of England, and the agricultural character of that of Italy. We can compare different sections of the same country, as England and Ireland, Prussia and Bavaria, the agricultural East Provinces of Prussia, and the industrial Rhine Provinces. We can make comparisons in time, showing the growing industry of Germany, or the increasing devotion of its population to trade and commerce. We can detect, as in the case of England, the tendency to employ less of the national labor-force in the work of production proper, and more in that of distribution and consumption.

The moment we begin to make use of such a general

classification, there is at once suggested the thought that the details which lie behind these great classes, might also be interesting. Under the head of agriculture we might like to know, not only the divisions into agriculture proper, mining and fisheries, but also the number of people devoted to cattle-raising, to gardening, to forest-culture, the number of farmers compared with farm laborers, etc. Under the head of industry we should like to know what particular branches of industry, such as iron and steel, the textile industries, making machinery, etc., occupy the population. The number of lawyers, physicians and clergymen suggests itself at once as a suitable method of subdivision under the head of professional services. There seems no limit in this direction to the number of subdivisions. We might like to know the general number of men engaged in the building trades, or, for the purpose of studying certain conditions, the number of brick-layers or hod-carriers. The only question involved, apparently, is whether an occupation is distinct enough to be classified by itself. The census of Massachusetts, in 1885, distinguished horse-radish peddler as an occupation.

Here also we may institute comparisons in space. We can compare the number of men engaged in the iron industry in Germany, France, England and the United States. We can compare the number of cotton spinners in England and the number of spindles with the number of cotton spinners in the United States, and the number of spindles. Such international comparisons are difficult and must be made with caution because of differing nomenclature. Comparisons restrict themselves, for the most part, to the number of men engaged in leading industries.

Comparisons in time within the same country are

somewhat easier. We can trace from decade to decade the increasing number of cotton spinners in England, or the decreasing number of ribbon weavers, or the stationary state of the agricultural laboring population. There may be some dispute about the interpretation of these movements and care must be taken that the statistics rest on the same basis. But with the necessary caution we have here a useful instrument for studying economic changes.

These are the main uses of occupation statistics, but they do not exhaust, by any means, the material. We can correlate the figures for occupation with others pertaining to the population in an almost endless variety of ways. Some of these are as follows :

(a) Sex and occupation. This is very interesting, especially when considering the question of the employment of women in factories, the supplanting of men by women, or the opening up to women of new methods of earning a livelihood.

(b) Conjugal condition and occupation. This throws light upon social conditions accompanying various occupations, and upon practical questions, such as the employment of married women in factories.

(c) Age and occupation. This often gives rise to interesting inferences in regard to the demand of particular occupations upon strength and activity, experience and trustworthiness, capital and financial resources.

(d) Vital statistics and occupation. This correlation has excited great interest as bearing upon the healthfulness of particular employments, danger to life and limb, sanitary and moral surroundings, etc.

(e) Race and nationality and occupation. These are almost peculiar to the United States and have particu-

lar significance both for sociological study and for practical questions of the political and economic development of this country.

Many other correlations are possible as with illiteracy, drunkenness and crime, pauperism, physical and mental infirmity, economic condition, etc., not to speak of triple or quadruple combinations such as age, sex, conjugal condition and occupation. It is evident that we have here a field for interesting comparisons and this field has in fact been cultivated with considerable industry by the statistician, the sociologist, the social reformer and the "crank." Our business, however, is not to consider the results but to determine the quality of the material and the validity of the methods employed.

The vital point of all statistics of occupations is the question of classification. At first sight there would seem to be no difficulty in getting truthful answers to the simple census inquiry, "Occupation!" It is a perfectly natural question, not calculated to excite resentment nor inviting a false answer either from fear of evil consequences or hope of gain. A few persons may be pursuing such dishonest or shameful trades that they wish to conceal them, but their number must be small and they belong either in the criminal class, or from the economic point of view in the unproductive class. Nor would it seem that any person could be so ignorant as not to know the occupation by which he gains his livelihood. There are of course minor difficulties, as when a man pursues two or more occupations, *e. g.*, a country store-keeper who is also post-master, or as when a man is farmer in summer and fisherman in winter, but these minor difficulties are summarily solved by demanding a man's principal occupation,

that is, the one which contributes most to his livelihood, or which he follows the greater part of the year. There is also the question of women and children who assist their husband or father a part of the time in store or shop, thus contributing to the support of the family. They do not really belong to the occupation, in the full sense of the word, any more than the man who writes a letter to the newspaper is really a journalist. We are not trying to measure the exact amount of labor-force expended in particular industries, although in certain cases the influence of this outside competition on professional remuneration may become an interesting subject of study.

The great difficulty in statistics of occupation is to determine what you have in mind when you speak of a person's occupation. Are you thinking of the particular thing that a man does, as hoeing potatoes, or sawing wood, or selling dry goods; or, are you thinking of the product to which he contributes, such as a railroad-car, or a wooden building; or are you thinking of the place where he works, as taking care of horses on a farm, or in a street railroad stable; or are you thinking of the position which he occupies, as the contractor who agrees to lay so many yards of stone work, or the mason who actually handles the stones? Take, for instance, a boss-painter in a car-works shop owned by a railroad; is he a painter, or a car-maker, or a railroad employee, or a foreman? If you ask the man himself he may answer any one of these four things. Either the distinction must be in the mind of the enumerator and he must determine how the answer is to be worded; or he may enter a compound answer, such as:—boss-painter, car-works, Pennsylvania Railroad. In the latter case the responsibility is simply carried one step further and

thrown upon the tabulator. The matter is complicated by the fact that we often need a qualifying term, in order to distinguish two occupations, bearing nominally the same name, but which are really different; and this qualifying term is often the name of the thing produced, the service rendered, or the place where the industry is carried on. Thus, there is a real distinction between an agricultural laborer, a railroad navvy and a day-laborer. The qualifying terms, however, are not intended to classify the men according to industry, but to distinguish the character of their occupation. A street car driver is not the same thing as a private coachman, although both handle horses. On the other hand, it would be a little difficult to define the difference between a hostler in a street car stable, and a hostler in a livery stable.

In order to reach any systematic classification, it is evident that we must keep one object in view and use all our qualifying terms as interpreting that one object, merely, and not as introducing any further classification or supplying any further information. Any other course lands us in inextricable confusion.

METHOD OF THE ELEVENTH CENSUS.

The principle of classification adopted by the Census Office is explained in the following words:¹

“The primary purpose of the classification in occupations in 1890 has been to show, so far as the returns of the census enumerators would permit, the character of the service rendered or kind of work done rather than to indicate the place of employment or the particular article made or worked upon. From the standpoint of the ‘individual’ return this is really the only practicable basis for classifying occupations especially as from the returns of the manufacturing, mechanical, and mining industries we are enabled to secure through the census an approximately accurate statement of the average number of persons of all sorts and kinds engaged in each particular indus-

¹ Eleventh Census. Population, 2:lxvii, end.

try, as derived from the returns of the establishments directly engaged in such production, and from which it is also possible to secure, wherever necessary, a much more minute subdivision and correct classification of the labor essential to the production of any specified kind of goods."

Additional evidence on this point is afforded by the detailed instructions to enumerators. Specimens of these instructions are as follows :

"Do not confuse the agricultural laborer, who works on the farm or plantation, with the general or day laborer, who works on the road or at odd jobs in the village or town. Distinguish also between wood choppers at work regularly in the woods or forests and the laborer who takes a job occasionally at chopping wood."

"Stenographers and typewriters should be reported separately, and should not be described simply as 'clerks.'"

"Distinguish between butchers whose business is to slaughter cattle, swine, etc., and provision dealers who sell meats only."

"In reporting occupations pertaining to manufactures there are many difficulties in the way of showing the kind of work done rather than the article made or the place worked in. The nature of certain occupations is such that it is well-nigh impossible to find properly descriptive terms without the use of some expression relating to the article made, or place in which the work is carried on."

"Distinguish also between glovers, hatters, or furriers who actually make or make up, in their own establishments, all or part of the gloves, hats or furs which they sell, and the persons who simply deal in but do not make these articles."

"Do not use the words 'factory operative' but specify in every instance the kind of work done, as cotton-mill spinner, silk-mill weaver, etc."

"Avoid in all cases the use of the word 'mechanic' and state whether a carpenter, mason, house painter, machinist, plumber, etc."¹

The office also disclaims,² in words quoted from the Tenth Census, the notion that there need be any correspondence between these returns of occupations, and the statistics of persons employed, derived from the returns relating to Manufactures, Mineral Industries and other industrial operations, where the establishment, and not the individual, is the basis of tabulation.

¹Eleventh Census. Instructions to Enumerators, 25-31, and Population 2 : lxxvii.

²Population 2 : lxxviii.

The officials of the eleventh census had a perfectly correct notion of what they were trying to do in the statistics of occupations. How far were they successful in carrying out this method? This brings us to a second great difficulty, namely, to determine what really distinguishes one occupation from another and how many classes of occupations it is necessary to have. The number of employments or kinds of work which differ from each other in some respect is very great. The clerk in a dry goods shop is not engaged in exactly the same kind of work as the clerk in a tailoring establishment. It is obvious, however, that we must throw employments of a similar nature together in order to handle our material. The principle upon which this is to be done is not very clear but can be none other than the general one of the kind of work done. That there is no concensus of opinion on this question is shown by the fact that in the census of 1850 there were 323 occupation designations; in 1860, 584; in 1870, 338; in 1880, 265; and in 1890, 218; which last number in some of the tables is still further reduced to 181. It is not necessary to be hypercritical in this matter,—a few minor occupations more or less make but little difference, provided the more important ones are consistently arranged according to some general principle. How far the eleventh census was successful in such arrangement, can be determined only by inspection. For this purpose, we take up the various occupations arranged under the five great heads, Agriculture, Fisheries and Mining; Professional Service; Domestic and Personal Service; Trade and Transportation; Manufacturing and Mechanical Industries.

The occupations grouped under Agriculture seem to be logical and reasonably distinct. The great mass of persons are either farmers, planters, or overseers (5,281,-

557); or agricultural laborers (3,004,061); with a considerable number of miners (349,592); and the rest are arranged under the heads apiarists, dairymen and dairywomen, fishermen and oystermen, gardeners, florists, nurserymen and vine-growers, lumbermen and raftsmen, quarrymen, stockraisers, herders and drovers, woodchoppers, and "other agricultural pursuits."

The second great group, Professional Service, is also reasonably successful; the main categories, professors and teachers, lawyers, physicians, clergymen, governmental officials, present but few difficulties. There might be some question whether musicians and teachers of music belong to the same class, or why artists and teachers of art, should be separated from musicians. They do very much the same work.

Under Domestic and Personal Service there are domestic servants, nurses and midwives, launderers and laundresses, etc. There are, however, nearly two million "laborers not specified" of whom we shall speak presently.

Under Trade and Transportation we have a number of occupations belonging to trade, such as merchants and dealers, book-keepers, clerks and salesmen, hucksters and peddlers; and others belonging to transportation, such as draymen, hackmen, teamsters, and street railroad employees. The distinction between bankers and brokers, on the one side, and officials of banks and of insurance, trade, transportation, trust and other companies, is not altogether clear.

But it is under the last head, Manufacturing and Mechanical Industries, that the greatest difficulties are met. We have, first, a series of well-defined occupations, such as bakers, blacksmiths, butchers, cabinet-makers, candle, soap and tallow-makers, carpenters and

joiners, coopers, gunsmiths, locksmiths, and bell hangers, masons, painters, glaziers and varnishers, plasterers, plumbers and gas and steam fitters, tailors and tailor-esses, upholsterers and wheelwrights, which remind us of a list of the old English handicrafts. The factory system, however, has evidently made itself felt and we have cotton mill operatives, hosiery and knitting mill operatives, mill and factory operatives not specified, paper mill operatives, print works operatives, rubber factory operatives, silk mill operatives and woollen mill operatives. There is evidently considerable danger here of confusing the industry classification with the occupation classification. This danger becomes greater, in some other designations which it was found necessary to use, such as chemical works employees, gas works employees, iron and steel workers, saw and planing mill employees, etc. This confusion becomes greater when we have side by side carriage and wagon-makers (not otherwise classified) and wheelwrights; and such general designations as apprentices, machinists, mechanics (not otherwise specified), metal workers (not otherwise specified), and wood workers (not otherwise specified).

These things are pointed out, not in a spirit of criticism, but as showing the difficulty of any system of classification. It is evident that it would be comparatively easy with a very slight stretching of terms to transpose large bodies of men from one occupation to another. This does not so much matter for any one census, but it makes comparison between different censuses in regard to the number of men of a specified occupation extremely uncertain. This is the probable explanation of some of the extraordinary percentages of increase shown in the comparative tables for 1870, 1880

and 1890, notwithstanding the conscientious efforts to harmonize the occupation groups. For instance, taking only 1880 and 1890, there has been an absolute decrease in the number of agricultural laborers, while farmers, planters and overseers have increased from 4,000,000 to 5,000,000. Bearing in mind that population increased only 24 per cent and the total number of persons engaged in gainful occupations only 30 per cent, it is rather astonishing that lumbermen and raftsmen increased 115 per cent, woodchoppers 165 per cent, fishermen and oystermen, 50 per cent, and miners 50 per cent. So, too, it is rather extraordinary, under professional services, that artists and teachers of art should have increased 147 per cent, musicians and teachers of music 100 per cent, while professors and teachers increased only 50 per cent. Under the head of trade and transportation, book-keepers, clerks and salesmen increased nearly 90 per cent. Under manufactures and mechanical industries, we have carpenters and joiners increasing 60 per cent, and painters, glaziers and varnishers, 69 per cent. On the other hand we have an absolute decrease of cabinet makers, carriage and wagon makers, coopers, gold and silver workers, and wheelwrights.¹

Doubtless many of these cases can be explained as due to changes in industry and others probably represent the more careful enumeration and classification of the eleventh census. But such facts introduce an element of uncertainty into all study of changes in employment from decade to decade.

On the whole, therefore, although the eleventh census propounded a logical system of classification, it does not seem to have been particularly successful in carrying it

¹ Eleventh Census. Population, 2:ci,ff.

out. Whether this was owing to the inherent difficulty of the subject or to the lack of care and intelligence on the part of the enumerators, it is impossible for an outsider to say.

It must be noticed, too, that the grand groups, Agriculture, Professional Service, Trade and Transportation, etc., are made up by combining the occupation groups. These grand heads, at first blush, would seem to be a classification by productive industry, and we are thus seeking an industrial grouping on the basis of occupational returns. This leads to some anomalous results. It is true, perhaps, that a book-keeper in a cotton mill may be said to belong to trade, a porter in a brewery to transportation, and a laborer in any of these undertakings to be rendering personal service. But such a distinction is an unnatural one and gives an air of unreality to the grouping. It does not seem quite right that engineers and firemen (not locomotive), should be put down to domestic and personal service, when the mass of them are, probably, in factories and workshops. The most serious item is the 1,913,373 laborers not specified, who constitute nearly one-half of the persons classified under the head of domestic and personal service. Doubtless many of these are really agricultural laborers, who are often returned simply as laborers. Many of them, however, must belong to manufacturing and mechanical industries. It is not quite clear how, starting with our principle of occupation statistics, we can group them into these great divisions. But it is quite clear that the procedure in itself is not particularly satisfactory. The result of this criticism is that we must be cautious about using these figures for comparative purposes, either in space (sections of the country), or time (increase or decrease of particular industries). On the other hand

where simply indications are needed, as the appearance of a new industry or the increased employment of women, or the prominence of certain nationalities in general lines of industry, such as mining, or iron and steel-working, they may be used. These facts will come out more clearly when we examine critically the use the census has made of these figures in its comparative tables. We shall not pretend to give results except as illustrations of this great question of method.

RESULTS OF THE ELEVENTH CENSUS AND METHODS OF ANALYSIS.

The Number of the Employed.—The first figure is the number of persons engaged in gainful occupations in the United States in 1890. For this purpose are considered only persons ten years of age and over. The total number was 22,735,661, out of a population ten years of age and over of 47,413,559. This makes 36.3 per cent of the total population, or 48 per cent of the population ten years of age and over.¹

This figure of course is fundamental and shows that a little over one-third of the total population supports the remaining two-thirds. Comparisons in space are shown on the following page of the census volume, where the number of persons ten years of age and over engaged in gainful occupations is compared for each division and each state and territory of the United States. There are considerable variations, the proportion of persons engaged in gainful occupations of the population ten years and over varying from 41 per cent in West Virginia to 67 in Montana. The cause of this variation is doubtless the age constitution and the character of the prevailing industries. In a state like Montana we should probably find a large number of male adults, engaged in mining

¹ Eleventh Census. Population, 2:lxxx.

and other occupations where only men are employed. There would be few women and children and little or no employment for them. The proportion of persons, therefore, engaged in gainful occupations will be large. In an older state there would be more women and children and, if the opportunities for employment were small, the percentage of persons engaged in gainful occupations would be small. We may have an intermediate condition of things, namely, a state like Rhode Island (56.4 per cent), where there is a large number of women and children and where opportunity is given for their employment in factories. An exceptional case seems to be a state like South Carolina where 55 per cent of the population ten years of age and over are engaged in gainful occupations. The explanation here is that large numbers of negro women and children work in the field. Our comparisons in space amount to but little in themselves and need to be explained by differences of age constitution and industrial environment.

Comparisons in time might seem to be useful as showing whether an increasing or decreasing proportion of the population is engaged in productive industry. The census shows¹ that, while in 1890 36.3 per cent of the total population and 48 per cent of the population ten years of age and over were engaged in gainful occupations, in 1880 the per cents were 34.7 and 47.3 respectively. This would seem to show an increase in the number of persons. The difference, however, is due to the fact that the proportionate number of children in 1890 (at least those returned by the census) was considerably less than in 1880.

Occupation and Sex.—The first analysis of occupation statistics is by sex, that is, to show the proportion

¹ *Ibid.*, lxxx.

of male and female persons engaged in gainful occupations. Many interesting questions are connected with this distinction, especially when we make note of changes in time, differences in space, characteristics of particular occupations and of particular elements of the population, such as the colored, the foreign-born, the children of the foreign-born, particular nationalities, etc.

In making this analysis by sex there are two methods which must be kept distinct, for they serve different purposes. In the first place, we may say that out of one hundred of the population ten years of age and over, engaged in gainful occupations, 82.8 per cent were males and 17.2 per cent were females. And we may carry this out for various occupations as follows: ¹

	Males.	Females.	Total.
Agriculture, fisheries and mining,-----	92.5	7.5	100
Professional service,-----	67.0	33.0	100
Domestic and personal service-----	61.7	38.3	100
Trade and transportation, -----	93.1	6.9	100
Manufacturing and mechanical industries, ---	79.8	20.2	100

This method is interesting as showing in a general way how far the two sexes contribute to the number of persons engaged in different industries. It is a bad method, however, the moment we attempt to make comparisons either in space or time. For, the proportion of the sexes being different in different sections or at different times, that would naturally make a difference in the proportion engaged in gainful occupations.

The second method consists in determining, out of one hundred persons of either sex, how many are engaged in gainful occupations. It thus appears ² that 77 per cent of the male population ten years of age and over, are engaged in gainful occupation, while only 17 per cent of the female population ten years of age and

¹ *Idem*, xc.

² *Idem*, lxxxiii.

over are thus engaged. This method answers the real question as to the employment of women as compared with men. It also permits comparisons in space and time. We have for instance, the comparisons for different parts of the Union. In the North Atlantic division 20.5 per cent of the female population ten years of age and over are engaged in gainful occupations, while in the North Central division only 12.5 per cent are thus engaged. This points to the factory industry in the first group of states. As far as time is concerned it would seem that the employment of women is increasing, for in 1880 only 14.7 per cent of the female population ten years of age and over were engaged in gainful occupations, as compared with 17.0 per cent in 1890. The method has its limitations, as we shall see further on, but on the whole it seems to be valid¹

Occupation and Age.—The second correlation is that of determining the ages of the persons engaged in gainful occupations. Here as before we have two methods. You may take one hundred persons in gainful occupations and show how many are from ten to fourteen years of age, from fifteen to nineteen years, from twenty

¹ A third analysis may be mentioned in this connection which is valid and interesting, *i. e.*, to show how many of 100 males or 100 females engaged in gainful occupations are in each group. (*Idem*, cxi and cxii). The result for the United States is as follows:

	Males.	Females.
Agriculture, fisheries and mining, -----	44.3	17.4
Professional service, -----	3.4	8.0
Domestic and personal service, -----	14.3	42.6
Trade and transportation, -----	16.4	5.8
Manufacturing and mechanical industries, ----	21.6	26.2
	<hr/> 100	<hr/> 100

This shows in which industries the males are chiefly employed and in which the females. The comparison is extended to states and territories and for the three censuses, 1870, 1880 and 1890.

to twenty-four years, etc.¹ This method is not very satisfactory for the reason mentioned above, that comparisons in time and space are difficult because of the changing age constitution.

The second method is to take the total number of persons in each age-group and show the percentage engaged in gainful occupations. We have such a comparison² showing also the distinction of sex.

The chief question of interest in regard to occupations by age periods is the employment of children. It appears that of males ten to fourteen years 11.2 per cent, and of females 5.9 per cent, are engaged in gainful occupations. "As compared with 1880, this shows a very great diminution in the proportion of children at work, although the exact decrease cannot be determined on account of the slight difference in the age classification of persons occupied in 1880 as compared with 1890. At the census of 1880 there were 825,187 males and 293,169 females ten to fifteen years of age at work, constituting respectively 24.4 and 9 per cent of the whole number of males and females of the ages stated."³

A similar comparison of the children ten to fourteen years in each of the elements of the population may be made. This shows that of the colored children ten to fourteen years of age, the percentage engaged in gainful occupations is 29.7, of the foreign born it is 15.6, of the native white of foreign parentage, 7.5, and of the native white of native parentage, 7.4. These figures apply to males; the corresponding figures for females are much smaller.

¹ *Idem*, cxxiii.

² *Idem*, cxxi. A third analysis is to show the distribution of 100 males (or females) of each age class, among the different grand occupations (*Idem*, cxxiii). This comparison is interesting and valid, although it is not so generally useful as the one just mentioned.

³ *Idem*, cxxii.

Other figures for children ten to fourteen years of age show that, out of 100 male children engaged in gainful occupations, 63.9 are engaged in agriculture, 0.1 in professional service, 12.6 in domestic and personal service, 9.8 in trade and transportation, 13.6 in manufacturing and mechanical industries. The corresponding figures for females are : agriculture, 41.4, professional service, .2, domestic and personal service, 38.3, trade and transportation, 2.6, manufacturing and mechanical industry, 17.5.¹

The next correlation would naturally be between occupation and conjugal condition. We need not go into the results except to say it appears that, of the total number of married women, only 4.6 per cent are engaged in gainful occupations, and that more than one-half of these are negro women.² The principal occupations are agriculture, domestic service and manufacturing.³

Our comparisons thus far have been of a general nature and apply for the most part to the whole body of persons engaged in gainful occupations distinguished according to certain general marks such as sex, age and conjugal condition. It is probable that even with these grand groups we must be cautious about extending our comparisons very far, either in time or space, because of the imperfection of our material. Especially in regard to particular occupations we must be cautious on account of the uncertainty of the classification.

We come now to a study of peculiar interest to the United States, especially in connection with occupations, namely, the study of the population according to race, birthplace and parentage. The statistics are carried

¹ *Idem*, cxxiii, second table.

² *Idem*, cxxvi, table and cxxix, first table.

³ *Idem*, cxxix, second table.

out in great detail in the census analysis. The question is how far this analysis is based on correct principles and how far the results are trustworthy.

It is necessary to remark in the first place that direct comparison of these different classes with each other is quite useless because of the differences in age constitution. The fact that 58.1 per cent of the foreign white population of ten years of age and over are engaged in gainful occupations as compared with only 43.6 per cent of the native white¹ means nothing, because we know that among the foreign whites adult males are largely represented, while the native whites include many more women and children. Many of the tables in the analysis are of this character and are entirely superfluous if not misleading.

These statistics may be used for the purpose of answering two definite questions: (a) How much each element contributes to the labor force of the United States or to the labor force employed in a particular industry; and (b) How the labor force of each element, as for instance the foreign-born, distributes itself in different industries.

The most important of these questions is the first. That can be answered directly. For instance, out of the 22,735,661 persons engaged in gainful occupations 5,104,757, or 22.5 per cent are of foreign birth.² That figure measures the contribution of the foreign-born to the labor force of the United States. We can go a step further and add to the foreign-born the native whites of foreign parents (3,542,408) making 8,647,165 persons of foreign extraction, or 38 per cent of the total labor force.

¹*Idem*, cxiii, table.

² *Idem*, cxvii, table.

By a further step we can show how each element contributes to the labor force in each grand group of occupations. For instance, to agriculture the native white of native parents contribute 56.8 per cent, the native white of foreign parents 8.8, the foreign whites 14.5, and the colored 19.9.¹

We can extend this method to particular occupations and show what portion of the labor force is contributed by each element of the population. Such a table is given both for males² and for females³ in certain occupations. Some of the results seem exceedingly probable. For instance, the foreign whites constitute only 9.5 per cent of the farm laborers and only 14.7 per cent of the farmers, planters and overseers, while they constitute 44.5 per cent of the gardeners, florists, nurserymen and vine growers, and 48.7 per cent of the miners and quarrymen. They constitute 21 per cent of the clergymen, but only 6.7 per cent of the lawyers. They constitute 49.7 per cent of the restaurant and saloon keepers and 71 per cent of the tailors. The native whites of foreign parents constitute 48 per cent of the apprentices and 45 per cent of the plumbers and gas and steam fitters. These figures are interesting as showing the way in which certain occupations are going into the hands of certain elements of the population.

We may, if we choose, subdivide our foreign-born into nationalities according to country of birth. We can thus show that of 100 foreign-born persons engaged in gainful occupations 28.7 were born in Germany, 20.4 in Ireland, 13.3 in Great Britain, 10.2 in British

¹ *Ibid.*

² *Idem*, cxviii.

³ *Idem*, cxix.

America and so on.¹ The same method is employed for each of the grand groups of occupations.

The census goes even a step further and attempts to analyze the total contribution of persons of foreign birth and descent to the labor force of the United States. For this purpose it takes the number of white persons ten years of age and over, having mothers born in foreign countries, and shows the number and per cent engaged in gainful occupations. The comparison between different nationalities² is useless, because the differences are due simply to the differences in the ages. The table on the following page is perhaps justifiable as showing the contribution of each of the foreign elements to the labor force in each occupation. It may be doubted, however, whether this analysis is not carrying refinement a little too far. Even if the principle is correct, the uncertainty of the original data is sufficiently great to make us doubt whether the labor is worth the pains.

We turn back now to our second method of analysis. We may like to know how each element of the population, the foreign-born, colored, native whites of foreign parents and native whites of native parents, distributes itself over different occupations. This is shown in a table³ where it appears, for instance, that the foreign white population is employed, 25.6 per cent in agriculture, 2.2 per cent in professional service, 26.9 per cent in domestic and personal service; 14 per cent in trade and transportation, and 31.3 per cent in manufacturing and mechanical industries.

This same system is carried out for particular occupa-

¹ *Idem*, cxlvii.

² *Idem*, clv, second table.

³ *Idem*, cxvi.

tions and sex¹ for those born in Germany, Ireland, Great Britain, etc., for grand groups of occupations ;² for the minor classes of occupations and sex ;³ for persons having mothers born in certain specified countries for grand groups of occupations, and sex ;⁴ and finally for sex, mother's birthplace and the minor classes of occupations.⁵

It must be observed in regard to this second class of statistics that we, perhaps, are going a little too far. The practical question we have in mind, probably, is what sort of occupations our immigrants choose. We are measuring, as it were, their relative capacity for industrial life, and basing upon it prognostications as to the future. It must be observed, however, that the choice of an occupation depends partly upon sex and age, and thus again differences in age and sex constitution may vitiate our comparisons.

Again, we may use these correlations of occupations with race, birthplace and parentage to answer certain specific questions ; as, for instance, whether the native or foreign born are most inclined to employ their women and children in gainful occupations. Thus, it appears that, of the colored female population ten years and over, 36.2 per cent are engaged in gainful occupations ; of the foreign white, 19.4 per cent ; of the native white of foreign parentage, 20.8 ; and of the native white of native parentage, 10.9 per cent. But these results are very doubtful. Taking the last two percentages it would seem that the native whites of foreign parents are more heavily represented in gainful occupa-

¹ *Idem*, cxx, f.

² *Idem*, cxlix.

³ *Idem*, cl-clv.

⁴ *Idem*, clviii, Table.

⁵ *Idem*, clix, ff.

tions than the native whites of native parents as far as females are concerned. If we look at males, we find that of native white males of foreign parentage 70.3 per cent, and of native white males of native parentage 73.9 per cent, are engaged in gainful occupations.¹ Does this mean that the daughters of foreign parents are more inclined to work than the daughters of native parents, while the reverse is true of the sons? The explanation is found in the age classification, where it will be found that, at those ages where females are most employed, namely from 15 to 19, and from 20 to 24, the native white females of foreign parentage are more numerous represented than the native white females of native parents. In plain words this great tendency of females of foreign parentage to go into gainful occupations is due simply to the demand for domestic servants.

The remaining analyses of occupations according to illiteracy,² citizenship,³ and ability to speak English,⁴ seem to me to be useless and to confuse cause and effect. The occupation is not the cause of these things, but it is owing to the fact that certain nationalities which have been here for a greater or a shorter time are thrown into certain occupations, that we have these figures.

Finally, the census made an effort by direct inquiry to find out whether persons were unemployed in their principal occupation during the year, and for how long they were thus unemployed. The investigation does not seem to have been very successful, and the data are so uncertain that the detailed analysis by occupations⁵ seems to me entirely useless.

¹ *Ibid.*

² *Idem*, cxxi-cxxxiii.

³ *Idem*, clxiii-clxvii.

⁴ *Idem*, cxxxiv-cxxxvi.

⁵ *Idem*, cxxxvi-cxlii.

METHOD AND SCOPE OF THE TWELFTH CENSUS.

What is to be said under this head must be based upon consideration of the experience of this and other countries with the two conflicting systems of classification, and upon our criticism of the analysis of occupation statistics found in the eleventh census. From this study the following points seem to me worthy of consideration.

It is probable that in the twelfth census, as in the preceding ones and in all countries of Europe, it will be necessary to continue the general classification of the population under the grand heads, Agriculture, Trade and Transportation, Industry, etc. The general practice seems to be to put Mining with Manufactures or Industry rather than with Agriculture, and I think the twelfth census would do well to return to the practice of the tenth in this respect. Otherwise the classes may remain as they are. For purposes of comparison with the eleventh census, it will be easy to transfer Mining in that census to Manufactures.

This grand classification is essentially one by industries. This fact must be recognized if the classification is to be continued. For this purpose it seems to me essential that strenuous efforts should be made to divide up that great body of laborers who are now classified under domestic and personal service, and place them under Agriculture, Trade and Transportation, or Manufactures, where doubtless the greater portion of them belong. This is probably a question of making the enumerators discard the title "laborer" and substitute for it a compound term, such as, agricultural laborer, railroad laborer, etc. There will doubtless be a residue of day or general laborers, which will still come under the class of domestic and personal service.

It seems to me also necessary that book-keepers, clerks, accountants, etc., should receive a subsidiary title designating the particular business in which they are employed. There would seem to be no particular difficulty in doing this. The distinction is already made between officials of trade and transportation companies and officials of manufacturing companies, and there seems to be no reason why the same thing should not be done for clerks.

This system would not prevent a classification according to the character of the work done, while it would make the grand grouping more precise.

In regard to the analysis the following remarks may be made.

(1) A great part of the analysis in the eleventh census is useless, because the age and sex constitution varies so in the different elements of the population that it vitiates all the comparisons.

(2) Comparisons of the number of persons in occupations from one decade to another, or in one section of the country compared with another, must probably be confined to large groups, such as railroad employees, cotton mill operatives, and the like, on account of the uncertainty of the minuter classifications.

(3) The analysis as a rule should confine itself to the discussion of specific questions, such as the employment of women and children, the presence of certain nationalities in certain industries, etc.

(4) The question in regard to unemployment by months might better be abandoned, and the analysis in regard to occupation and illiteracy, citizenship and ability to speak English, is of little consequence.

(5) The number of persons dependent upon the wage-earner in each branch of industry was not tabulated in

the eleventh census, although the facts were on the schedules and might easily have been brought out. It is hoped that the twelfth census will attempt this for at least the grand groups of occupations and the principal elements of the population.

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APPENDIX.

PREVIOUS CENSUSES IN THE UNITED STATES.

It is stated in the Eleventh Census,¹ that :

“Prior to 1850 no effort was made to obtain through the census enumerators detailed statements as to the occupations of the people, although in 1820 and again in 1840 the number of persons engaged in certain general classes of occupations was called for.

At the census of 1850 an inquiry was made on the population schedule as to the occupations of free males over 15 years of age, the printed results comprising 323 occupation designations in an alphabetical list, without classification according to the number engaged in each of the great classes, as agriculture, manufactures, and the like, and without any details as to their age or nationality.

Again in 1860 a similar alphabetical list of the occupations of free persons over 15 years of age, without distinction of sex, was printed in the report for that census, this list comprising 584 occupation designations but without classification or description of the persons so occupied.

At the census of 1870 occupations were tabulated for all persons 10 years of age and over, subdivided by sex, age and nationality, and classified under four general heads, namely : agriculture ; professional and personal services ; trade and transportation ; and manufactures and mechanical and mining industries. The presentation of occupations in 1870 covered 338 occupation designations.

In 1880 the classification of occupations used in the census of 1870 was maintained, but the number of occupation designations was reduced to 265. Similarly, the subdivision by sex, age and principal nationalities was observed, but the number of separate nationalities was considerably less in 1880 than in 1870.”

The report goes on to say :

“At the present census (1890) no radical departure was made from the general plan of classifying occupations adopted in 1870 and 1880, but several changes were made for various reasons, and the number of occupation designations still further reduced to 218.”

If we turn now to the census of 1880,² we shall find that, while the occupations have not been changed to

¹Population, 2 : lxxv, f.

²Tenth Census 1 : 708, quoting Ninth Census 1 : 661.

any great extent the principle of classification in 1880 was radically different from that pursued in 1890. The plan in 1880, following that adopted in 1870, was "To refer every specification of occupation to some grand division of industry; and within each of such grand divisions to constitute as many distinct subdivisions as the nature of the material furnished by the enumerators would allow to be formed with a reasonable approach to completeness." The principle adopted here is that of classification by grand industries and not that of occupations which was followed in 1890. In fact the Superintendent avowedly rejected the system of expressing the employments of the people through a large number of minute and precise specifications, susceptible of being combined and re-combined successively according to different ideas or theories of classification. His reasons for this are that the subdivision of labor and the organization of industry in the United States really correspond rather to the larger classification than to the smaller, owing to the lack of division of labor; and, secondly, that the average enumerator is incapable of carrying out any body of instructions respecting the returns of occupations which require more than the plain and simple characterization of each main employment in the common phrase of the working people themselves.

In accordance with this plan the title "clerk" appears under the head of professional services, and also under the head of manufactures and mining, so far as the persons are employed in a purely clerical capacity in those branches of industry, while under the title of trade and transportation, clerks appear several times as "clerks in stores", "clerks in banks", "clerks in railroad offices", etc.

It thus appears that the census of 1890, for better or worse, made a radical departure from the principle of 1880.

In other respects the census of 1880 was peculiar, or at least different from that of 1890, inasmuch as Mining was put under the head of Manufactures. As the Superintendent remarks: "Mining is like Agriculture, in that it obtains the raw material of subsequent industrial processes and it is like Manufactures in that its agencies and forces are chiefly mechanical not chemical."¹ Which position is right may be doubtful, but in Europe the custom is to group it with Industry rather than with Agriculture. There seems to be less excuse for grouping Fisheries with Manufactures.

The returns of 1880 are analysed according to sex; by three groups of ages namely 10 to 15, 16 to 50, 50 and over; according to six nationalities; and distributed according to states and territories.

¹Tenth Census, 1:708.